TITLE OF THE INVENTION

Small Boat Stowage System and Skeg Assembly for Boats

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit under 35 U.S.C. § 119(e) of U.S. Provisional Application No. 60/459,189, filed March 31, 2003, the disclosure of which is incorporated by reference herein.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

N/A

BACKGROUND OF THE INVENTION

Dinghys are a convenience and often a necessity on cruising boats. With powerboats, towing a dinghy reduces speed and causes safety issues. On-board stowage of a dinghy as an alternative can be a problem for small watercraft. In larger vessels, dinghies, sailboats, windsurfers, etc. are stowed either in davits hanging from the stern or sides of the vessel or in shaped chocks set onto the decks, typically upper decks, where they are secured by straps. Some larger powerboats and sailing boats over 50 feet have storage for windsurfers, etc. that is accessible from the stern. This storage is usually a slide-in, semi-submersible storage system.

SUMMARY OF THE INVENTION

The present invention relates to a stowage system for stowing a dinghy or other bulk item(s) on board a larger parent boat. With the present stowage system, a well is formed below

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the after deck in the hull of the parent boat adjacent the stern. The well is sized to receive a smaller boat, such as an inflatable dinghy, a hard shell dinghy, or another type of small watercraft. The well is opened through a cover assembly, generally hatches or solid covers, at the deck level. The hatches of the cover assembly sit flush with the deck level when in a closed position. The cover assembly is movable to expose the well so that the dinghy or other small boat can pass through the opening when the cover is in an open position. In this manner, the dinghy or other small boat does not have to be stowed in an inconvenient and dangerous or hard-to-access location on the foredeck, cabin roof, cockpit, in davits, or resting on a swim platform. After the dinghy is stowed, the cover assembly is closed to present a flush deck.

Another aspect of the present invention relates to a skeg assembly with twin skegs that provides an improved tracking capability for a powerboat. The skeg assembly in turn allows the engine drive shafts to be placed so as to open up space for the well for the dinghy or small boat stowage.

DESCRIPTION OF THE DRAWINGS

The invention will be more fully understood from the following detailed description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a perspective view of a powerboat incorporating dinghy stowage with a cover assembly in an open position and a dinghy stowed athwartship according to the present invention;

Fig. 2 is a perspective view of the dinghy stowage of Fig. 1 illustrating the covers in a closed position;

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Fig. 3 is a perspective view of a power boat incorporating dinghy stowage illustrating a dinghy stowed fore and aft;

Fig. 4 is a partial side view illustrating transfer of a dinghy to or from the dinghy stowage of Fig. 1;

Fig. 5 is a partial plan view of the dinghy transfer of Fig. 4;

Fig. 6 is a cross-sectional view taken along line VI-VI of Fig. 4 and illustrating exemplary dimensions as well as a twin skeg assembly according to the present invention;

Fig. 7 is a plan view of a power boat incorporating dinghy stowage according to the present invention illustrating placement of components to accommodate dinghy stowage;

Fig. 8 is a side view of a power boat incorporating a twin skeg assembly according to the present invention;

Fig. 9 is a perspective view of the boat of Fig. 8;

Fig. 10 is a partial side view of one skeg of the boat of Fig. 8;

Fig. 11 is a partial cross-sectional view along line XI-XI of Fig. 10;

Fig. 12 is a perspective view of one skeg with propeller attached;

Fig. 13 is a side view of the twin skeg assembly with propeller blades removed for clarity and rudders attached;

Fig. 14 is a perspective view of the twin skeg assembly illustrated in Fig. 13.

DETAILED DESCRIPTION OF THE INVENTION

Referring to Figs. 1-3, a parent boat 10 is provided with a well 12 in the aft cockpit deck 14 near the stern 16 large enough to accommodate a fully inflated or hard shell dinghy 20

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or other small boat or bulk item(s). A cover assembly 30 in the nature of a hatch(s) 32 fits over the well and, when closed, lies flush with the deck 14 or forms a flush-decked cockpit sole 34, as can be seen in Fig. 2. The dinghy can be stowed athwartship (Fig. 1) or fore and aft (Fig. 3). In the present invention, the terms "dinghy," "small boat," and "smaller boat" are used to include any type of rowing, outboard, sailing, surfboard, fully inflated life raft, personal water craft, or the like capable of being stowed in the below deck well 12 of the parent boat 10.

To deploy the dinghy, the cover assembly 30 is opened, and the dinghy 20 is lifted out of the well 12 with a davit assembly 40, for example, a pivoting or rotating davit arm 42 mounted to the parent boat 10 and equipped with a hoist system 44, such as a rope or wire and pulley system. See Figs. 1-5. The davit assembly is mountable in any suitable manner to the parent boat. For example, the davit assembly may include a pole 46 disposed vertically in an aperture 47 in the hull in the stern area and may be secured to the sides. The hoist system of the davit assembly has a set of lines 48 fastened to hoisting rings 49 or the like in the dinghy 20. Using these, the hoist assembly lifts the dinghy high enough to clear the parent boat's rails or bulwarks, swings the dinghy clear of the parent boat, and lowers the dinghy into the water. To stow the dinghy, the cover assembly 30 is opened, and the dinghy is lifted up out of the water by the hoist system, swung into the boat and over the well, and lowered into the below deck well. The hoisting lines are stowed and the cover assembly is closed. Once stowed on board the parent boat, the dinghy, in its fully inflated or hard body construction form, is not visible or in the way of aft cockpit usage.

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The cover assembly 30 preferably includes one or a pair of cockpit or hatch covers 32. See Figs. 1-3 and 6. The covers are mounted to the parent boat in any suitable manner, such as with piano hinges 52 and well edge lips, ledges, or brackets 54, and are of a sufficient size and strength or reinforcement to support the expected loading over the well. Preferably, the covers are hingedly mounted along opposed edges, as illustrated in the embodiment in Figs. 1-3 and 6.

In the preferred embodiment illustrated, two covers are provided. Referring to Fig. 6, each cover is in a bi-fold form having two panels 56a, 56b, 58a, 58b connected by a center hinge or hinges 60, 62. The innermost panels 56a, 58a of the pair of covers meet along a centerline 64 of the well opening. Preferably, the innermost panels are reinforced to bear the load between the sides and may include an interlocking or overlapping element 66 for additional strength and to close gaps between the panels and minimize entry of water below. Similarly, the panels of each bi-fold cover may include an interlocking or overlapping element 68 at the hinge for additional strength and to close gaps between the panels.

Preferably, an opening mechanism 70 is provided to perform or assist in the opening of the cover assembly. For example, one or more gas-filled or pneumatic struts or other opening device may be mounted along the sides of the or each cover or in another suitable location that does not interfere with access by the dinghy. The opening mechanism can alternatively be electrically or hydraulically operated. In one alternative, the opening mechanism can be configured to open the cover once the cover has been moved out of a fully closed position. In another alternative, the cover can be biased open with a biasing mechanism and held in the closed position

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against the biasing mechanism with a retaining mechanism. For example, one or more quick release pins or hooks can be provided to hold the cover in the closed position, such that, once the quick release pins are removed, the cover opens under actuation of an opening device such as a gas-filled strut. In this way, the dinghy can be quickly accessed so that it can float out of the well if the parent boat floods or sinks, resulting in the equivalent of a ready-inflated life raft. Also, the cover or covers can be opened entirely or partially manually through, for example, recessed grab rings or handles.

As can be seen in Figs. 4 and 6, the well 12 can preferably be formed by an internal pan 80 that fits within the hull. A channel 82 for a bilge pump is provided along the centerline of the pan. Suitably sized and shaped supporting blocks 84 are provided to support the pan within the hull. The pan may be formed in any suitable manner, such as by fiberglass molding, as would be known by one skilled in marine construction. The hull structural and support members along with the propeller shaft(s), fuel tanks and other components are placed sufficiently low in the hull or to one side or the other side to allow clearance for the dinghy. See, for example, Figs. 4, 6, and 7. Removable access panels 86 may be provided along the sides and front and back of the well if desired. Alternatively, the internal pan may include integrally formed upstanding panels.

When the dinghy 20 is stowed, there is no loss of deck space. Other items can be stowed in the well also, such as the davit assembly 40, which can be foldable to stow along side the dinghy. An outboard motor can fit inside the dinghy. Similarly, gear such as ropes, lifejackets, fenders, etc., can be stored within the dinghy. Approximately 85% of the underdeck space is

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useable in the case of a conventional hard sided dinghy. In the case of an inflatable dinghy, approximately 60% of the underdeck space is available for storage.

The dinghy is suitably sized for the given length of the parent boat into which it fits. For example, a 32-foot powerboat can accommodate a dinghy up to 10 feet long by 5 feet, 6 inches wide and having a total vertical height of 2 feet, 2 inches. Vessels as small as 31 feet or smaller can stow a 9-foot dinghy and motor with relative ease. Fig. 6 illustrates dimensions of one exemplary embodiment.

In another aspect of the present invention, illustrated in Figs. 4 and 6-11, a skeg assembly 110 is provided on a powerboat to improve the boat's tracking capability and reduce or avoid autopilot sway tolerance. Advantageously, the skeg assembly also allows the engine drive shaft(s) 112, such as for forward mounted engines 114, to be lower in the hull, which provides sufficient space for the dinghy stowage well 12 described above. Referring more particularly to Figs. 6, 9, 11, and 14, the skeg assembly includes twin skegs or a pair of skegs 120, 130 that depend from the bottom of the hull 116 of the boat. The skegs are placed symmetrically on either side of the boat's centerline 64, preferably as far aft as possible. In use, water is tunneled through the region 118 between the skegs 120, 130. Symmetrical placement minimizes or prevents unbalancing forces on either side of the boat. The skegs have a fore and aft airfoil profile and generally taper or narrow in transverse cross section away from the boat hull. The cross section may include a deviation from the tapered shape in the form of a bulge 122, 132, described further below. Referring to Fig. 10, the aft edge 124 of the skeg is generally straight and extends down from the hull orthogonally or nearly orthogonally.

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The front edge 126 of the skeg is more tapered and may include a transition to a more angled edge 128 (Figs. 4, 9, 10) or more curved edge 129 (Figs. 8, 12-14). Additional fins or bulges 123, 133 may be placed near the bottom of each skeg to stabilize and promote a smoother water flow.

The propeller shafts 112 from the inboard engines 114 extend downwardly at an angle through each of the skegs 120, 130. Thus, each skeg forms part of the propeller shaft support. The bulge 122, 132 is formed in each skeg where the propeller shaft passes through. A propeller mount 142 is bolted or otherwise affixed to the aft end, and a propeller 144 is mounted to the propeller mount.

A brace 150 extends from the bottom of the skeg to a rudder 152 on a rudder shaft to provide extra support for the rudder and prevent fouling from lines and obstructions. The brace is bolted or otherwise affixed to the bottom of the skeg via a suitable bracket 156 at one end. The brace includes a pivot mount 158 for the rudder shaft at the other end.

In an alternative, if a boat is provided with a jet drive, the twin skegs can be placed aft of the jet drive underwater outlet. In a further alternative, the twin skegs can be used with an outboard engine. In this case, the propeller shaft bulges would not be necessary.

The skegs can be integrally formed with the hull or attached thereto in any suitable manner. The skegs can be formed from any suitable material, such as bronze, stainless steel, fiberglass, or wood, using marine construction techniques. The skegs also provide some degree of protection to the hull.

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The invention is not to be limited by what has been particularly shown and described, except as indicated by the appended claims.

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